THE BOSTON
MEDICAL AND SURGICAL JOURNAL.

VOL. XCII. — THURSDAY, MARCH 11, 1875. — NO. 10.

AN UNUSUAL RESULT OF SEPTIC POISONING: DISCOLORED SKIN; DIPHTHERIA; HÆMATURIA; SPORES.

A GRADUATION THESIS, JULY, 1874.

BY WILLIAM STURGIS BIGELOW, M. D., OF BOSTON.

BETWEEN the months of September and December, 1873, ten of the newly-born children at the Boston Lying-in Hospital were attacked by well-marked symptoms of an unusual character. Eight died and two recovered. The microscopical examination of a kidney and larnyx from one of these subjects having shown certain exceptional appearances, the records of the hospital were examined for a history of the cases. The symptoms and the autopsies there recorded, although less complete than might be desired, distinctly traced the existence of a curious endemic affection. As the symptoms of this disease and the gross appearance of the affected organs were similar in all the cases, it is not unfair to infer that a microscopical examination of the diseased tissues would have revealed a corresponding general resemblance in their minute changes. The following account of the cases is taken from the hospital records.

FATAL CASES.

1. Male, six and a half pounds. Born September 8th. September 17th. Skin dark, discharges green and fœtid. 18th. No better; one

EXPLANATION OF PLATE.

TRANSVERSE SECTION NEAR THE BASE OF A MALPIGHIAN PYRAMID.

a. Epithelium in tubes of Bellini. Outline of cells obliterated.
b. Lobulated masses of globulin.
c. Vein containing blood corpuscles.
d. See *b.*
e. Tubular cast of globulin.
f. Granular globulin in centre of cast.
g. Tubes of Henle. Epithelium intact.
h. Solid mass of globulin in tube of Bellini.
l. Henle's loops.
m. Artery containing granular débris of blood corpuscles, similar to *f.*
o. Tube of Bellini, empty.
s. Spore colony extending through walls of tube into parenchyma.
t. Annular cast of globulin.
u. Granular globulin in tube of Henle.

diaper covered with blood and the dark green discharge from the bowels. 20th. Much weaker. 24th. Died.

2. Male, nine pounds. Born September 5th. On the 12th the child seemed unwell and would not nurse; discharges watery; skin very blue. 13th. Died. The color of the skin resembled that resulting from continued doses of nitrate of silver; discharges dark green and fœtid; mouth almost black, and very sore. Death in sixteen hours.

3. Female, nine and a half pounds. Born September 7th. September 14th. Taken sick at three this morning; discharge from bowels dark green and very offensive; skin of the color produced by repeated doses of nitrate of silver; respiration normal and rather slow; heart regular; will not nurse. 15th, evening. Rather better. 16th, evening. Better. Skin more yellow. 17th. Better. 20th. Mouth bleeding; mucous membrane sloughed off. 21st. Worse; hæmorrhage from kidneys. 25th, 10 A. M. Died.

Autopsy. Dark color somewhat faded out. Peritonitis. Adhesions about spleen. Upper part of larynx, pharynx, and œsophagus covered with a diphtheritic membrane, which could be stripped off œsophagus. Larynx ulcerated. Intestine apparently healthy throughout. A clot of the size of a finger's end existed in the bladder, being a cast of the interior of the organ. The pelves of the kidneys and the ureters were filled with coagulated blood, as were also the Malpighian pyramids. At this time an opinion was expressed that diphtheria was the primary cause of the child's death.

4. Female, ten pounds. Born October 16th. 23d. Became ill. Vulva inflamed. 24th. Metastatic abscess on back of hand. 25th. Patient worse; circumscribed abscess on scalp; other new abscesses forming. 26th. Odor offensive; left leg purple; hand swollen; right arm paralyzed. 9 P. M. Died.

5. Female, six and a half pounds. Born November 3d. November 10th. Child became blue last night; the mouth is very sore; diapers black and offensive; some blood on diaper from urine. 11th, 8 A. M. Died.

Autopsy. This child was almost black after death, the skin resembling that of a negro. There was no disease of the umbilical vessels, and no diphtheritic inflammation of the larynx or pharynx. Some change existed in the structure of the liver, simulating acute yellow atrophy. A large coagulum was found in the bladder. The other organs were healthy, including the brain.

6. Female, six pounds. Born November 1st. 10th. Child became sick; mouth very sore. 11th. Much worse; turned very dark; dejections black and offensive. Evening. Child worse; refuses to nurse, and moans continually. Died at midnight.

Autopsy. Dark color but little faded after death. Umbilical vein in

a state of thrombo-phlebitis; contents in a condition of puriform softening. Spleen large and dark. Kidneys dark, with clots in pelves. Other organs, including larynx and pharynx, healthy. No coagulum in bladder.

8. Male, seven pounds. Born December 8th. December 18th. A little dark; diaper dark and offensive; mouth very sore. 19th. Two operations last night, with the latter of which the urine was bloody; two during the day. 20th. One operation last night, and one during the day; worse in the evening. 21st. One operation during the night, and another in the course of the day; will not nurse. Evening. Mouth worse; cannot swallow. 22d. One operation last night; worse to-day. 8 P. M. Died.

Autopsy. Emaciation. Color had been deep but is now faded. Umbilical vessels healthy. Liver normal; ductus venosus closed. Spleen large and dark. Pelves of the kidneys full of blood; Malpighian bodies injected; whole organ engorged and dark. Larynx diseased, a diphtheritic membrane covering part of vocal cords and glottis. Other organs healthy. No clot in bladder. Small purple points of extravasation over whole body.

CASES OF RECOVERY.

9. Male, nine pounds. Born November 2d. Was attacked November 12th, and turned dark.

℞ Tincturæ ferri chloridi, gtt. iij., every two hours.
Wine and water every two hours, alternating with the iron.

November 13th. Child was much better and continued improving up to November 17th, when the mother and child were discharged.

10. Female, nine and a half pounds. Born November 16th. November 24th. Child turned dark last night; mouth very sore; hæmorrhage from kidney.

℞ Tincturæ ferri chloridi, gtt. iij., every three hours.

Evening. Four operations; urine bloody; discharge from eye. 25th. Child a little better, and nurses a little; three operations last night. Evening. About the same; eye still discharging; during the day three dark and very offensive operations. 26th. Much better; one operation last night; three during the day; better color. The eye being about the same, was washed with

℞ Zinci sulphatis, gr. j.
Aquæ destillatæ, ʒj.

Evening. Condition improved. 27th. One operation last night; none during the day; child much better. 28th. One operation during the night; still improving; eye much better; mouth nearly well; no operation during the day. 29th. Two operations during the night. Evening. Much better; eye about the same. 30th. Much improved. Discharged.

The house physician [1] states that in these cases four symptoms were prominent although not always recorded, namely, —

1. Deep discoloration of the skin.
2. Hæmaturia.
3. Diphtheritic inflammation of some of the mucous surfaces, in every case but one, where a thrombo-phlebitis of the umbilical vein existed.
4. Dark green offensive dejections.

The order of appearance of these symptoms may be approximately determined from the record. In eight cases the discoloration appeared on the first day; in one on the second. The diphtheritic symptoms appeared in six cases in the first day, but in one on the sixth. The hæmaturia appeared three times on the first day, in three cases on the second, once on the seventh. The dark dejections, seven times on the first day and once on the second. The duration of the shortest case was sixteen hours; that of the longest fatal case was eleven days; the average length being about five days, and the average age of the infants when attacked about eight days.

Autopsies. — Post-mortem examinations were made in every instance. Four only are recorded, but Dr. Fitz, by whom they were made, states that these may be considered as fairly representing the rest. The following results were arrived at: —

The brain, intestinal tract, and lungs were normal.

The spleen was always enlarged and dark, peripheral inflammation being sometimes indicated by the existence of adhesions.

The liver was as a rule relatively unaltered; but in one case presented alterations simulating acute yellow atrophy.

The kidneys showed evidence of engorgement. The pelvis of the organ was generally filled with coagulum, as were the ureters and bladder.

The mucous membrane of the mouth, and in one instance that of the vulva, showed evidence of active diphtheritic inflammation. In some instances the larynx and pharynx were involved, and in one case the œsophagus.

Thrombo-phlebitis of the umbilical vessels was found in one or two cases.

A *microscopical examination*, by the writer, of between two and three hundred sections of a kidney gave the following results.[2] (See Fig.)

The small arteries were generally dilated, either with blood corpuscles or with an unevenly granular mass (m), of a color varying from

[1] Dr. Samuel Howe.

[2] The specimens were prepared for examination by hardening them while fresh in a two per cent. solution of chromic acid in water for several days. They were then preserved in alcohol. The sections were washed, stained with hæmatoxylin, again washed, the water displaced by absolute alcohol, and this by oil of cloves.

nearly gray to brown, the color being in proportion to the fineness of the granules. In the latter substance there was no trace of blood disks. The small veins (c) were filled with corpuscles, but in no case so far as observed with granular matter. The tubes of Bellini were distended with matter resembling that found in the arterioles, but varying in consistency from the granular condition above mentioned (f) to that of large, brown, semi-transparent, lobulated masses, inclosing deep red amorphous granules of hæmatin (b). These sometimes filled the tube entirely, and sometimes lined it in the form of a hollow cylinder (e).[1] In the latter case the central cavity of the cylinder was seldom empty (b), but filled with similar material in a granular condition (f). More rarely, two or three cylinders occupied the same tube, as if they had been formed in one of the smaller tubules and floated to their present position. The looped tubules of Henle (l) were for the most part empty, but occasionally contained masses of the same substance. The convoluted tubes were generally filled with the same material, but only in one or two cases was there any trace of extravasation into the Malpighian capsules. The Malpighian corpuscles were generally injected. The renal epithelium was usually displaced and shrunken, but sometimes absent; changes in part, perhaps, due to the action of preservatives. In the large straight tubes it was generally contracted away from the walls into close contact with the inclosed cast (a), the outline of the cells being lost, and only an occasional nucleus remaining visible. In Henle's loops it was generally represented by one or two detached shreds (l), while in the straight tubes lying between the convoluted tubes and those of Bellini it was best preserved (g).

Distinct from the brownish material of these casts, the tubes contained at various points accumulations of a gray, homogeneous, and finely granular material, in the form of a long, broken cylinder of which the outline was interrupted at intervals by continuations of the substance through the walls of the tube into the interstitial tissue. A cross section of such an accumulation is indicated in the centre of the figure (s), where the outline of the tube originally containing the granular matter is nearly obliterated by the extent of the extravasation. In their gross appearance these granules resembled spores, the "cocco-bacteria" of Billroth, and on the addition of potash hydrate they were found to be insoluble. The optical and chemical properties thus gave strong evidence of the identity of the granules observed in this case with those usually regarded as spores.

Under these circumstances, the existence of similar spores in the larynx might be anticipated, and such proved to be the case. On examination, its surface was found covered with a diphtheritic infiltration

[1] The possibility of such casts being composed of desquamated epithelium, agglomerated and stained with blood-coloring matter, is not to be denied.

which offered no unusual appearances. The surface was ulcerated at points, presenting shallow, ragged excavations. The individual epithelial cells were generally separated by the accumulation in the interspaces of a translucent, homogeneous material of a high refractive index, the neoplastic nature of which was suggested by the greater readiness, compared with the surrounding tissue, with which it absorbed hæmatoxylin. The submucous areolar tissue was thoroughly infiltrated with wandering cells and granules (bacteria spores), which were at points so crowded as to indicate a tendency to abscess formation. The endothelium of the muciparous glands was slightly more transparent than usual, while around the tubules were occasional extravasations of a translucent, delicately striated, colorless material of doubtful origin. Lastly, imbedded in the epithelial layer, each covering the area of twenty or thirty cells, were numerous groups of spores, exactly resembling, in appearance and reactions, those found in the kidney.

Hæmaturia. — This symptom was in these cases associated with coagula in the bladder, extending up the ureters and filling the calyces of the kidneys, the tubes of which were filled with the highly colored solid materials of the blood which had penetrated to their interior. This was observed, not at isolated points of mechanical rupture or inflammatory softening, but throughout the organ, more especially in the Malpighian pyramids. This material was amorphous, and in no case was a well-defined blood-corpuscle found inside a tube. The supposition which best accounts for the appearances here detailed is either the existence of some alteration of the blood which would allow the passage of the material of the corpuscles through the walls of the tubes, or an alteration of the tubes or vessels themselves, or both. Again, so plentiful a development of spores at remote points would suggest transmission through the circulation.

Discoloration of the Skin. — That this was in some degree due to a capillary hyperæmia was shown by its partial disappearance after death. But to a great extent it did not disappear, either spontaneously or on pressure. Besides, the modifications of color were not such as occur while the blood is contained in the capillaries, but rather resemble those of a subcutaneous ecchymosis from violence. Such a penetration and staining of the subcutaneous areolar tissue by the coloring matter of the blood is fairly attributable, under the circumstances, to the conditions previously mentioned.

Diphtheria. — This symptom affords additional evidence to the same effect, since, in the form in which it commonly occurs, diphtheria is associated both with colonies of spores in the larynx and with a modified condition of the blood.

Dark Dejections. — No alteration of the intestinal tract was found which accounted for this symptom.

Thrombo-phlebitis of the umbilical vein, which occurred in one instance, is of interest as suggesting a possible source of disease in that case, since the puriform contents of a vein might bear the same relation to the disease under consideration that a suppurating wound bears to an ordinary case of pyæmia, a view favored by the absence of well-marked diphtheria in the case referred to. Under these circumstances it is to be regretted that no microscopic examination for spores in the blood was made during life, and that the only fact ascertained with certainty is, that in some of the injected veins of the kidney the white corpuscles were largely increased in number, being in the proportion of about one to twenty-six of the red.

In the *Archives de Physiologie* for September, 1873, M. J. Parrot describes, under the name of "Tubulhématie Rénale," two cases occurring in infants, which, although differing from the above in some points, correspond so closely in their essential features as to leave little doubt of their similarity. The first of these cases is stated as follows: Convulsions, bronze discoloration of the skin, hæmaturia, alteration of the blood, phlegmonous erysipelas of the scalp, softening of the brain, lobular pneumonia, and multiple renal lesions, the latter consisting of a "centre of softening in one kidney" and numerous points of supposed incipient softening of the size of a pin's head, in which the microscope showed everything veiled, so to speak, by extremely fine granulations, into which part of the renal parenchyma appears to have been transformed. Blood casts, in the form of hollow, and more rarely solid, cylinders, were found in the large tubes of Bellini, sometimes to the number of twelve to twenty in a single tube. Here and there was a spot of a lighter color, in no way recalling a blood corpuscle, sometimes isolated in the tubules, sometimes occupying the center of the tubular casts."

The second case was characterized by "bronze discoloration of the skin, mahogany-colored urine, excess of white corpuscles, encephalic disturbance (strabismus), pneumonia, and renal lesions." At the autopsy, the brain, liver and stomach were found normal. A clot of some days' standing was found in the pulmonary artery, and old clots in the renal veins. "Muguet buccal," though without mention of the fungus (*oidium albicans*) characteristic of this disease, is recorded in the account of the symptoms, but omitted in the summary. The occurrence of epileptiform convulsions in the first case is adduced as evidence of uræmic poisoning, a supposition which does not seem to be confirmed.

Both cases exhibit three symptoms characteristic of this disorder, namely, discolored skin, hæmaturia, and inflammation of the mucous membrane of the mouth. The character of the dejections is not mentioned.

The conclusions of M. Parrot from these two cases are as follows: —

"Tubulhématie rénale is characterized, clinically, by encephalopathic

troubles, a bronze discoloration of the skin, an alteration of the blood, and hæmaturia; anatomically, by the presence in the renal tubules of the red blood-globules which there take on a special arrangement."

"Tubulhématie rénale is caused by a primitive dyscrasia of the blood (a diminution, and probably an alteration, of the red globules)."

These conclusions are not altogether corroborated by the Boston cases, which were not characterized by encephalic symptoms, and were accompanied by diphtheria, not muguet. It has been shown also that the alteration of the red corpuscles was something more than an "agencement particulier."

It will be especially observed that M. Parrot, in recognizing a change of the blood as the principal cause, stops short of any further and remote cause of the conditions which have been described.

The Boston cases seem to imply that this alteration of the blood may be secondary, and dependent upon some local process of a septic nature, such as a diphtheritic inflammation or a thrombo-phlebitis, from both of which sources spores might readily be transported to the kidney.

A detailed description of the condition of the blood during life is of interest in connection with the Boston cases. The following points were noted by M. Parrot: —

1. Excess of white corpuscles.
2. Deficiency of red corpuscles.
3. A probable alteration of the red corpuscles, inferred from the existence of numerous bodies of smaller size, each containing from one to three granules.
4. A great number of fine granules floating in the serum.

The last fact deserves attention. It is held by some of the best modern observers that even in health a certain number of organic germs or spores exist in the blood, an increase in the number of which is associated with the development of certain diseases, notably those classed as septic. The numerous small granules observed by M. Parrot in the general circulation suggest a possible origin of the spores which were identified by tests in the Boston cases. But the origin of the granules themselves is not clear. M. Parrot inclines to the belief that they are produced by an alteration in the red corpuscles. It should be remembered that a breaking up of the red corpuscles is by no means unusual in certain febrile and inflammatory disturbances, in which case numerous fragments, although there may be no granules, are found, as in the instances cited.

Since the above was written, a brief notice has appeared in the *Revue des Sciences Médicales*, No. 5, January 15, 1874, of the description of an "epidemic" of the same disorder at the Hôpital de la Maternité, at Lyons, by MM. Laroyenne and Charrin. The cases seem to be generally identical in character with those observed in Boston. The altera-

tion of the blood, consisting of "leuko-cytosis, granulations, and augmentation of the volume of the red corpuscles," is regarded as a primordial phenomenon. "In no case was there any appearance of cerebral symptoms, nor did any lesion of the brain appear at the autopsy." "For want of sufficient materials, M. Charrin has not solved the question of pathogenesis. It remains to be discovered by what cause the alteration in the blood is produced." The hygienic conditions of the Lyons hospital, like those of the Boston hospital, were excellent at the time the endemic occurred. The number of cases was fourteen and all were fatal.

In conclusion, it may be added that in the present imperfect state of knowledge of the relation of germs to disease, involving a probability that any inconclusive theory will be superseded by some other, the following statement appears to be consistent with facts so far as known. Newly born children may be attacked by a disease or diseases generally fatal, with certain conditions in common, but with other conditions, such as diphtheritis and thrombo-phlebitis, of such decidedly local character that it seems advisable to regard these last as the essence of the disease. The characteristic features are, —

1. Discoloration of the skin.

2. Diphtheritic inflammation of some of the mucous surfaces. In one case, thrombo-phlebitis.

3. Hæmaturia.

4. Dark green fœtid dejections.

5. An alteration of the blood, consisting in (*a*) excess of white corpuscles; (*b*) alteration of the red corpuscles; (*c*) the existence of granules.

6. Accumulations of the amorphous material of the red corpuscles in the renal tubules, with clots in some cases in the ureters and bladder.

7. Accumulations of spores: (*a*) in the renal tubes, with extension outside their walls; (*b*) in the larynx, and possibly on the other surfaces affected by the diphtheritic process.

The process is generally endemic. The local accumulation of spores appears to be in close relation to the phenomena of the disease.

The following questions are suggested by the above cases: —

(*a.*) The identity of some of the granules in the blood and the spores.

(*b.*) The origin of the granules in the blood, and their possible connection with atmospheric germs.

(*c.*) The exact nature of the alteration of the red corpuscles.

BABIES' SORE EYES, AGAIN.

BY HENRY W. WILLIAMS, A. M., M. D.,
Professor of Ophthalmology in Harvard University.

If the remarks of Dr. Derby, in the JOURNAL of February 18th, had been merely an ordinary criticism of my article on the ophthalmia of new-born children,[1] I should not have thought a rejoinder necessary. But when my friend takes exception on the ground that, "coming from one who occupies the official position of a teacher of ophthalmology, it cannot be passed over in silence by those members of the profession who pin their faith on the practice which he reprobates," and further says, "With all respect for the sincerity of Dr. Williams's belief, I would state that he stands comparatively alone among ophthalmic surgeons in discarding the use of nitrate of silver in the ophthalmia of new-born children," I cannot do less than defend the suggestions I made as to the proper course to be pursued in this disease. This I do for the same reason which induced me to write my previous article, namely, that the question has an interest for the profession at large, into whose hands these cases must generally fall.

On the subject in question I have not merely a "belief," but a conviction; a conviction founded, on the one hand, upon my having personally witnessed the method advocated by Dr. Derby, in the practice of the very men themselves whose authority he cites, and on my having seen frequent and recent instances of its harmfulness as applied by those of less experience; and, on the other hand, upon careful observation, and a long and successful use, of milder measures; for which, however, no credit for originality belongs to me.

Dr. Derby quotes four authors "as exponents of the four leading European schools." But of these, one represents the school of Vienna, the other three, virtually, the school of Berlin, all of them being well known as its disciples.

Now, I may appeal to these very men in support of the position I took, that the "cauterization," advocated by them, is *dangerous*, *cruel*, and *needless*. Wecker says, "It is true, the cauterizations are very painful for the infants,"[2] and, "their agitation and sleeplessness are probably due to the treatment they are made to undergo."[3] Furthermore, Wecker and others insist most strongly, in their instructions as to the use of the *lapis mitigatus*, on the great importance of its application at exactly the right time, neither too soon nor too late after the previous cauterization — too soon, if applied after the elimination of the eschar before the regeneration of the epithelium; too late, if the epithelium has reformed and

[1] Journal, January 28th, 1875.
[2] Wecker, Études Ophthalmologiques, tome i., page 51.
[3] Wecker, Études Ophthalmologiques, tome i., page 62.

the tumefaction of the conjunctiva reappeared. "It is only by cauterizations applied precisely before this period of relapse that we can arrive at a favorable result; and it is difficult to decide whether this has occurred, as it is only by a very attentive observation that it can be perceived. The increase of secretion, of which the patient can best inform us, gives us the best indication as to the time when we should repeat the cauterization." [1]

Here is an interesting state of things! Even the skilled oculist cannot, by his own observation, determine, in an adult, the proper time for cauterizations which he avers must be made with great precision; but must get his most important information from the patient's sensations. How, then, can the general practitioner determine these nice points, and in babies, too, who cannot give any information?

Wells says,[2] "In out-patient practice, where the patients can only be seen two or three times a week, by far the best remedy is the injection of the collyrium of alum and zinc, as employed at the Royal London Ophthalmic Hospital (zinc. sulph. gr. ij., alum gr. iv., aquæ destil. ʒi.). A little of this is to be injected with a glass syringe between the lids. The frequency of the injection must be regulated according to the severity of the disease." This, "by far the best remedy" for those who are not to be under his constant supervision, he evidently considers all-sufficient to insure good results; for of course he would not allow eyes to be endangered for the want of any essential means. But he goes on to say, "If the patient can be seen every day, or even more frequently, the mitigated nitrate of silver in substance should be used." Yet he tells us, in another chapter,[3] "The injudicious and excessive use of caustics in the treatment of purulent ophthalmia (more particularly that of children) may change the disease into the diphtheritic form."

Galezowski, of Paris, says,[4] "The cauterizations with the mitigated crayon of nitrate of silver sometimes cause such violent pain that the infant's cries are followed by convulsions."

In the splendid work recently published by Stellwag,[5] Professor of Ophthalmology in the Imperial Royal University of Vienna, we find, "The *abortive* method, which has very recently been adopted, involves the most danger. This consists in penciling the conjunctiva, once or twice a day, with strong solutions of nitrate of silver, say ten or twenty grains to the ounce of water, or with the mitigated stick (nitrate of silver and nitrate of potash). The slough of itself increases the inflammation already caused by the agent. The result is very generally a marked increase of the inflammatory symptoms, which antiphlogistic

[1] Wecker, Études Ophthalmologiques, tome i., pages 48, 49.
[2] Soelberg Wells, Treatise on Diseases of the Eye, pages 32, 39.
[3] Soelberg Wells, Treatise on Diseases of the Eye, page 43.
[4] Galezowski, Traité des Maladies des Yeux, page 182.
[5] Stellwag von Carion, Diseases of the Eye, page 319.

treatment is not always able fully to subdue by the time of the next cauterization.

"This is beginning to be understood by those who advised this method of treatment."

Thus it appears to be sufficiently proven, by our critic's own authorities, and others familiar with the method, that the nitrate of silver, *lapis infernalis*, and its half-brother, *lapis mitigatus*, are still to be regarded as edged tools, not to be heedlessly handled even by the most experienced; that their use in this disease is attended by much suffering and danger, unless resorted to at a particular stage of the disease, which stage cannot easily be determined even by experts; and that they are by no means essential remedies, since patients (*vide* Wells) get along without them when strict cleanliness and mild astringents are the means relied on. Let us see what others say can be done without these agents.

The founder of the Royal London Ophthalmic Hospital, Moorfields, as great a genius in his day as Graefe in ours, thus writes in regard to the treatment of this disease:[1] "Very moderate astringents are the best. I have never had occasion to employ any other astringent than a solution of alum, varying from two to six grains to the ounce of water."

Lawrence says,[2] "Even the most violent form is easily manageable, and will do well when properly treated. We generally use a simple solution of alum, in the proportion of two grains, which may be increased to six grains, in the ounce of water. Such was the treatment at the London Ophthalmic Infirmary, and out of many hundred cases I hardly recollect one where the eye suffered in any respect."

Walton thus lays down his treatment of purulent ophthalmia at the Central London Ophthalmic Hospital:[3] "The astringent I generally use is a solution of alum, four grains to the ounce of water. I feel assured that all applications to the conjunctiva that produce severe or prolonged pain are injurious. I attach great importance, at all periods of the disease, to frequent syringing with astringent lotions."

Druitt says,[4] "The ophthalmia of new-born children, if submitted to early treatment, is easily cured by great attention to cleanliness, and by incessantly washing away the discharge with some mild astringent lotion. The practice at the Central London Ophthalmic Hospital is to wipe away from the eye as much discharge as possible; then to apply a lotion of four grains of alum to an ounce of water."

Three of the colleagues of Mr. Wells at the Moorfields Hospital, all of them men of the highest standing, have recently published works on eye diseases.

[1] Saunders, Treatise on some Practical Points relating to Diseases of the Eye, page 14.
[2] Sir William Lawrence, On Diseases of the Eye, pages 224, 226.
[3] Haynes Walton, Operative Ophthalmic Surgery, page 243.
[4] Druitt, Vade Mecum, page 362.

Dixon says,[1] "The best plan of treatment seems to consist in using, very frequently, a weak astringent lotion, so as to wash away the secretion before it has time to collect in any quantity. If the smooth point of a syringe be carefully placed just within the commissure of the lids, the wash will be propelled over the whole surface of the affected membrane. The surgeon must strongly impress upon the nurse how much the great question of the preservation of the child's sight depends on the regular use of the injection."

Hutchinson writes,[2] "With regard to the treatment of purulent ophthalmia, when occurring in syphilitic infants, the local remedies are by far of the greatest importance. Drops containing one or other of the mineral astringents, nitrate of silver, acetate of lead, or alum, should be prescribed. The two latter are preferable on account of the freedom with which they may be employed."

Lawson tells us,[3] "The indications for treatment are, to wash away the discharge from the eye as often as it collects, and to use some astringent lotion to arrest the re-secretion of the purulent matter. The lotion which I generally use is one of alum, six grains to an ounce of water."

To come nearer home: it is not long since I heard one of our most experienced ophthalmic surgeons, one who has been partial to the use of nitrate of silver in other circumstances, condemn its employment in this disease, at one of the meetings of the Suffolk District Medical Society, saying that he had known a great many eyes put out by its injudicious use. Since the publication of my article of January 28th, three of our colleagues in this city, whose large obstetric practice has brought many cases of infantile ophthalmia under their observation, have told me that for a long time they had used only the mildest means, and with full success.

I will add only the following letter, the unsolicited testimony of a physician whose experience and good judgment make his opinions highly valued throughout the community in which he lives.

"*February* 20, 1875.

"I have lately seen in the JOURNAL your remarks on ophthalmia of new-born children, and the reply of Dr. Derby in another number of the same JOURNAL.

"A painful experience, many years ago, impressed on my mind the necessity of prompt treatment in this disease, and I have been in the habit of using the nitrate of silver, either solid or in strong solution, until within the last four years. Having a case which caused me unusual anxiety, I called you in consultation, and, following your advice, I used the treatment that you have since recommended in your paper.

[1] Dixon, Guide to the Practical Study of Diseases of the Eye, page 67.
[2] Hutchinson, Syphilitic Diseases of the Eye, page 187.
[3] Lawson, Diseases and Injuries of the Eye, page 19.

The simplicity of this treatment, its painlessness, and the good result of it were so marked, that I have since adhered to it, with invariable success.

"My own private practice, of course, does not furnish a very large field for the observation of this disease; but I have had an opportunity to see it at the St. Mary's Asylum in Dorchester. The very intelligent Sister of Charity at the head of this asylum has told me that she has seen, in the course of her experience in different hospitals, a great deal of the ophthalmia of the new-born and the purulent conjunctivitis of older children, and that the treatment has always been the application of caustics; but nowhere has she seen recovery so early and with so little suffering as we have had under your plan."

If the treatment advocated by Dr. Derby had in it anything of novelty, my objection to it might be ascribed to ignorance of its merits. But my acquaintance with the *lapis mitigatus* has been long, and my opportunities for seeing what it could do somewhat extensive. I was with Desmarres, at Paris, when he introduced it into use, and had ample facilities for seeing how far it justified the good opinion of its originator. On my subsequent visits to Europe I again watched its effects as applied by Graefe and Wecker; but I then saw no reason for reversing the judgment I had formed after previous observations and my own personal experience in its use. Nor have I since seen any such reason.

My opinions, therefore, have been neither hastily nor ignorantly adopted. The article in the JOURNAL of January 28th, to which Dr. Derby has objected, was prepared because I had within a short time previously witnessed cases of blindness where the disease had been treated (as would be deemed judiciously) with nitrate of silver. The profession certainly have an interest, for their patients' sake and their own, in learning how this serious affection may be treated the most quickly, safely, and pleasantly. And the question is by no means to be decided by comparative results of treatment in the two eyes, in one, or a few cases. The severity and duration of symptoms vary greatly, in the eyes of different infants, and in the two eyes of the same child. Many cases, which at first threaten to become purulent, turn out to be merely simple catarrhal inflammation, and subside by attention to cleanliness alone. Could the disease be shortened by the caustic treatment, we might accept its greater danger, and employ it in these cases as well as the severer ones, for the sake of the shortened term in the latter; but this is by no means proved. On the contrary, while severer cases are not shortened, and mild ones are aggravated, there are other immense disadvantages and serious dangers incident to this method. The infant, expecting fresh tortures, cries whenever the eyes are touched, though it be only for carrying out the "strict attention to cleanliness,"

which even the advocates of cauterization admit to be equally essential. The lids are spasmodically contracted, and complete eversion often takes place. Any examination of the condition of the eye, and especially of the state of the cornea, is rendered a very difficult matter; and the repeated use of an elevator becomes necessary, when otherwise gentle raising with the fingers would have sufficed for opening the lids. This necessary process of inspection is thus not only painful, but, in case of ulceration, may cause rupture of the cornea and destruction of the eye.

I would willingly stand alone, for a time, among ophthalmic surgeons, if, in so doing, I could be instrumental in substituting, for any harsh method, a more successful and milder treatment. It is not twenty years since I endeavored to show that salivation was not a *sine qua non*, as all the authorities taught, in the treatment of iritis. Few would now do reverence to the old plan. Mr. Wells writes,[1] "Formerly it was very much the custom to place all cases of iritis under the influence of mercury. Now, however, a more rational mode of treatment obtains." Stellwag says,[2] "The old belief in the absorbent power of mercurials has been very much lessened in modern times."

As regards another important point, the use of lead in collyria, I still have the "bad eminence" of standing nearly alone, most of the authors including acetate of lead among their list of remedies, whilst urgently warning against its use in some frequent complications of the very cases in which they advise it. One colleague, however, already appreciates the situation. Mathewson says,[3] "I go into these details of the evil results of the use of a popular prescription, sanctioned by the authority of some of the best known writers, to justify my opinion that lead applications to the eye should be wholly discarded. Certainly there is no necessity for using this remedy when there are so many other equally good, and their use unattended by such dangers. Williams, of Boston, is the only authority I have consulted who takes this common-sense view of the matter."

In advocating mild treatment for the ophthalmia of new-born children, I neither stand alone, nor, on the other hand, do I claim unanimous consent. Of course I am well aware that many able authors advise the use of the *lapis mitigatus*. But many equally judicious men prefer other means. My own mind is fully persuaded; and I feel justified in choosing a method marked by "*simplicity*, *painlessness*, and *good results*," [4] and in asking the profession to let the babies off easy.

[1] Wells, Diseases of the Eye, page 159.

[2] Stellwag von Carion, Diseases of the Eye, page 192.

[3] Mathewson, Notes on Ophthalmic Practice. New York Medical Record, November 16, 1874.

[4] Vide letter above inserted.

RECENT PROGRESS IN ANATOMY.[1]

BY THOMAS DWIGHT, JR., M. D.

OSTEOLOGY.

The Spinal Column. — Dr. Bardeleben's monograph[2] on the structure of the vertebræ will be considered a valuable contribution to science, for although much that it contains is not new here, it is so in Germany, where it is generally believed that Meyer in his Architectur der Spongiosa, published in 1867, was the first to show that the cancellous tissue of bone was constructed according to architectural principles. Bardeleben has discovered that the idea is enunciated by Professor Humphrey in his work on the Human Skeleton, published in 1858, but is not aware that it was then far from new. It is interesting to observe that the late Professor Wyman, in his paper presented on November 7, 1849, and published in the sixth volume of the Boston Journal of Natural History, quoted from earlier authors, and it is also interesting to see that though Dr. Bardeleben has carried the matter much more into detail his results confirm Dr. Wyman's views. In the latter's paper we find the following passages: "With the exception of the great work of Bourgery and Jacob (Traité Complète de l'Anatomie de l'Homme), and the excellent and instructive Outlines of Human Osteology by F. O. Ward, nearly all systematic treatises are deficient in descriptions of the mechanical arrangement of the cancellated structure of bones." Also, "Bourgery and Jacob, to whom the merit belongs of first calling attention to the subject, have recognized its interest, and have shown that there exists in several of the bones a definite relation between the direction of the cancelli and the weight that the bones, of which they form a part, are destined to sustain." And further: "The direction of these fibres in some of the bones of the human skeleton is characteristic, and, it is believed, has a definite relation to the erect position which is naturally assumed by man alone. These structures are the most conspicuous in the lumbar part of the vertebral column," etc. In spite of their remarkable industry and research, we think German scientific workers are open to criticism for their want of familiarity with the literature of other countries than their own. It is far from our intention, however, to disparage the present monograph, which is very meritorious.

Most of the antero-posterior vertical sections are through the pedicle and the superior articulating processes. The upper and lower borders of the pedicles are of thick, compact tissue, from which laminæ take origin, some of which connect the superior and inferior articulating

[1] Concluded from page 263.

[2] Beiträge zur Anatomie der Wirbelsäule. Von Dr. Bardeleben. Jena. 1874. Pages 39. Variations in the Vertebræ and Ribs of Man. By Professor Struthers. Journal of Anatomy and Physiology, November, 1874.

processes, while others run through the vertebræ, forming for the most part the transverse bands. A horizontal cut shows them radiating from each pedicle, and crossing one another in the middle of the bone. The main point, however, is as stated by Dr. Wyman, that the body of the bone is composed of stronger vertical "studs" connected by lighter transverse "braces," and this is the case not only in the lumbar region, where he described it, but more or less distinctly throughout the column. The bodies of the sacral vertebræ are on the same plan, but particularly in the first are numerous and strong trabeculæ running outward to the lateral surfaces. We have not space to discuss the part of the work relating to comparative anatomy, but may say that the vertebræ of quadrupeds, contrary to recent views, present marked modifications, and that the structure of the spongy tissue has a teleological rather than a homological signification.

The author has weighed very carefully the vertebræ, excepting the irregular atlas and axis, of several skeletons, and finds a regular increase in weight from above downward, excepting at two points. The second and third dorsal and the fourth lumbar are each lighter than the one above. The fourth and fifth dorsal, though increasing regularly, do not equal the first. The book is illustrated by really admirable photographs.

Professor Struthers's analysis of many cases of varieties of the spine and ribs is very valuable, as it enables us to form some idea of the frequency of particular variations. We can refer to but one or two of the more interesting discussions. Several cases of cervical ribs attached to the seventh vertebra are minutely described, but offer nothing very new, although three cases of diagnosis of this anomaly during life are interesting. It is important to be aware of this possibility, for otherwise an extra rib may be mistaken for a morbid growth; and moreover, if the rib be more than rudimentary, the relations of the subclavian artery, which usually passes over it, are considerably modified. The case reported by Mr. Wilkes to Professor Struthers deserves to be reproduced, at least in part. The patient was a thin woman, fifty-six years old. "Mr. Wilkes noticed a very prominent knob in the middle of the left posterior triangle, and recognized it to be a cervical rib, an opinion in which his colleagues concur. The prominence ends as a knob of bone, the size of the last division of an adult man's thumb; projects boldly outwards and forwards, and from the under surface of the knob a hard continuation can be traced to a part beneath, apparently the first rib. The distance of the knob from the spine of the seventh cervical vertebra was four and one half inches; from the middle of the neck, in front, three inches; from the centre of the clavicle, the arm natural, two inches; when the arm was raised, one inch; from the knob to the left sterno-clavicular articulation, three and one fourth nches; to the end of the acromion, five inches.

"The subclavian artery seems raised quite two inches above the clavicle, and is most dangerously situated for injury. In its third stage, traced upwards and inwards from the middle of the clavicle to the knob, the artery is seen pulsating, as if subcutaneous, and might easily be mistaken for an aneurismal dilatation. Above and external and somewhat posterior to it are felt the cords of the brachial plexus of nerves. In the situation of the knob the pulsation is lost, leaving the position of the artery here somewhat uncertain. To the inner side of the scalenus anticus is felt the connecting bond between the cervical rib and the first thoracic rib, and then the first stage of the artery, outward pressure on which stops the circulation in the third stage, and also the radial pulse." A similar but smaller prominence was felt on the right side.

Text-books on anatomy are not agreed as to whether the ninth dorsal vertebra bears a part of a facet for the head of the tenth rib, and if not, whether the facet on the tenth is entire. Struthers has examined twenty-one sets of otherwise normal vertebræ to elucidate this point, with the following result. In nine, or perhaps eleven (for some were doubtful), the ninth had no demi-facet below on either side, while it had one on both sides certainly in three, and on one side certainly in seven. The facet on the tenth was not complete (without the fibro-cartilage) in seventeen of the twenty-one.

There are many interesting observations on variations of number in the lumbar, sacral and coccygeal vertebræ, but embryological researches are, we think, necessary to throw much light on this difficult question.

Alleged Rotation of the Ulna.[1] — Though this paper is hardly in place in a report on the progress of anatomy, we will venture to discuss it briefly, inasmuch as it has been pretty generally quoted without, as far as we know, any adverse criticism. Dr. Lecomte holds that both bones take part in the rotation of the fore-arm. His demonstration consists in inclosing the wrist in a metal ring large enough to allow it to turn (the thumb and forefinger of the other hand will do as well), and in noticing that as the hand is rotated the end of the ulna undoubtedly changes its place. There is no denying that the effect is very remarkable, and that it is hard to believe that the ulna does not move; but the following experiment, which we have tried several times, shows conclusively that the appearance is deceptive. Rotate the arm of a cadaver, and observe the same apparent movement of the bone that is seen in life; then make a small incision down to the bone on the styloid process of the ulna, and drive a large pin firmly in. On fixing the humerus and repeating the rotation, it will be seen that the pin does not move.

TEETH.

The last chapter of Dr. Harrison Allen's work on the Facial Region is devoted to an attempt to apply the principles of evolution to the

[1] A paper by Dr. O. Lecomte, in the Archives Générales de Médecine, August, 1874.

nomenclature of the teeth of a single dental formula. In other words, the author, if we understand him aright, wishes to show that the more complicated teeth consist solely of aggregations of the elements that compose the simpler ones.

As is well known, there is in certain animals a band of dental substance on the side of the tooth, called the cingulum, which, as it is rudimentary in man, Dr. Allen proposes to call the cingule. In the incisors and canines it can be pretty clearly seen on the posterior surface; in the bicuspids it becomes larger, and, having a fang under it, it is really a cusp, technically the bicuspid cusp, as it is from its presence that the tooth derives its name. The marked development of a new cingule, and the appearance of still another, converts a bicuspid of the upper jaw into a superior molar; while in the lower jaw two fully and one imperfectly developed cingules are necessary to form an inferior molar. The shape of the wisdom teeth is attributed to reversion. The idea is certainly ingenious and suggestive, but, as is the case with applications of the evolution theory in general, there are some rather large links missing.

HEART.

Development of the Septum. — Though Rokitansky's[1] recent admirable monograph is, as a whole, pathological rather than anatomical, the points relating to development may very properly be referred to here. According to Rokitansky, the septum of the ventricles is to be divided into three parts: the anterior, the membranous, and the posterior. To follow the description, let the reader imagine himself to be looking upward into the heart, from which the apex and the greater part of the ventricular walls have been removed. In front, coming from the right, is to be seen the conus arteriosus, leading to the pulmonary artery. Nearly behind it is the origin of the aorta, and behind this the cavity of the left ventricle. The right ventricle extends forward beside the beginning of the aorta. The posterior septum runs forward to the right side of the aorta, between which and the right ventricle is the membranous septum. The anterior septum curves forward and to the left, lying at first between the conus and the aorta, and later between the aorta and the pulmonary artery. Thus it appears that the upper part of the septum of the ventricles describes nearly a fourth of a circle. The membranous portion is small and triangular, situated on the upper part of the septum, as above described. The septum is of two layers throughout, being composed of fibres from each ventricle. The auricular septum is divided into the membranous and fleshy parts, each of which, however, contains muscular fibres. The membranous portion is that forming the floor of the fossa ovalis. The description, though minute, presents little that is new, and we pass at once to the most important part, that of

[1] Die Defecte der Scheidewände des Hertzens. Vienna. 1875. Page 156.

development. The septum of the ventricles begins as a crescentic fold from the apex of the heart, and expands upward so as to cross the auriculo-ventricular slit. The anterior portion goes to form the left wall of the truncus arteriosus (later to be divided into the two great arteries), and would thus shut it out from the left ventricle did not an opening in the septum remain below the origin of the truncus. The septum of the truncus grows from above downward, and in a way to put the pulmonary artery in front and somewhat to the left, and the aorta behind and somewhat to the right. Ultimately a growth from the border of the defect in the septum of the ventricles runs to meet the partition wall of the arteries in a way to connect the aorta with the left ventricle. The ventricular septum is probably complete in man at the end of the second or the beginning of the third month.

Rokitansky's investigations must change greatly our views on the development of the auricular septum. It is usually regarded as made of two folds that meet at the edges but not in the middle, leaving the foramen ovale, which was closed at birth by the complete attachment of a secondary membrane. The reverse is the case. The membranous portion is the earliest provisional septum. It never presented a round central orifice, but was full of irregular perforations that permitted the blood to pass from the right to the left auricle. In the third month, — we imagine it may be earlier, but our author does not give us precise data, — the permanent fleshy septum appears about the border of the provisional membrane, and, growing in two main folds, an anterior and a posterior one, finally forms the annulus ovalis around a central persistent part of the temporary septum, which, as its imperfections are filled up, closes, to use the author's expression, an opening which never existed.

TYSON ON THE EXAMINATION OF URINE.[1]

It is very refreshing to see a thoroughly good book on the urine appear in the English language, and Dr. Tyson by writing such a work has placed the profession under great obligation. The need of a guide for the complete analysis of urine, that is, such an analysis as the general practitioner should be able to perform in his office, has long been felt both by the physician and by the medical student.

Dr. Tyson's book is not a complete scientific treatise on the urine, but is just what its title implies, a practical "guide." Most of the so-called "guides" which have been issued of late upon this subject have contained all of the errors of works published fifteen or twenty years ago. For instance, it is by no means uncommon to find the advice given in testing the urine for albumen

[1] *A Guide to the Practical Examination of Urine.* For the Use of Physicians and Students. By James Tyson, M. D. Philadelphia: Lindsay and Blakiston. 1875.

to combine the heat and nitric acid tests, by which procedure the detection of the albumen, if it is present only in small amount, is quite sure to be prevented. We have no such criticisms to make upon the present work. In fact, it is so nearly perfect, in our estimation, that we can find scarcely any opportunity for criticism.

It commences with a few remarks upon the secretion of the urine, and upon the apparatus and reagents required to make a complete analysis. The general physical and chemical characters of the urine are next treated, and all of the important points are thoroughly considered. Next, the various normal and abnormal constituents are taken up, and the best tests for each are concisely described and explained, together with the methods for estimating their amounts quantitatively whenever a quantitative estimation is important. The clinical significance of an increase or diminution in the amount of the normal constituents, and of the presence of the abnormal, is also spoken of. The processes which are employed throughout the work are chiefly those of the Vienna school.

In describing Böttger's test for sugar, the action of albumen, if present, upon the subnitrate of bismuth, namely, to produce the black sulphide of bismuth, which may readily be mistaken for the metallic bismuth produced by the reducing action of the sugar, is not mentioned.

For the quantitative estimation of sugar in diabetic urine, both Fehling's and Pavy's solutions are given. It is not recommended, however, to keep the solution of sulphate of copper in one bottle and the remaining constituents in another, in order to prevent the spontaneous reduction of a portion of the cupric oxide, which will take place in the original Fehling's solution in spite of all precautions.

In performing the nitric acid test for albumen according to Heller's method, and Heller's test for the biliary pigments, a test-tube is recommended; and in the tests for urophæin and indican, a beaker. In all of these tests we very much prefer to use a smooth wine-glass, like that known as the "Collamore" wine-glass, since it is much easier to manipulate, and all of these glasses have the same calibre.

We must differ from Dr. Tyson in the statement made upon page 60 in regard to Heller's test for indican. He says, "If, however, the violet color does not appear in one or two minutes, the indican is not increased." We certainly have seen specimens of urine in which the violet color did not appear in from fifteen to thirty minutes, and then it gradually deepened until a very deep purple or even blue was reached. In one of these specimens the indican was found, by quantitative estimation by Jaffé's method, to be increased about twenty-five times as compared with the normal amount.

The only other criticism which we have to offer is the omission of any mention of Sonnenschein's reagent (a saturated solution of sodic tungstate rendered acid with acetic acid) for the detection of blood pigment when in solution in the urine. This reagent is, in our opinion, far preferable to all others for the detection of blood pigment in solution, whether it be in the form of hæmoglobin, methæmoglobin, or hæmatin.

Throughout the book the new chemical nomenclature and the metric system

of weights and measures are used, and at the end of the work are given valuable tables for the reduction of the metric system into the English, and *vice versâ*. Heller's tables for recording urinary analyses are also given, with slight modification.

The book ends with a short chapter upon the "differential diagnosis of renal diseases," and two pages upon the analysis of urinary calculi. No systematic method for the detection of *all* the constituents of a calculus is given, but only those tests by which the principal component can be determined. The means for detecting the rarer constituents also are not given.

In conclusion, we are much pleased to be able to heartily recommend Dr. Tyson's book to the profession, and to assure our readers that they will find it all that it pretends to be, a thorough and complete "guide to the practical examination of urine." E. S. W.

REGISTRATION REPORTS.

One not specially interested in the subject of the registration of vital statistics, although perhaps alive to its importance, would be fairly appalled by the solid array of tables and figures which the annual reports on this subject contain. Even a casual observer will nevertheless discover many interesting and instructive facts in these documents. That the importance of such statistics from a sanitary point of view is becoming yearly more fully appreciated is shown by the increased care in the preparation of the reports, and the changes in the laws regulating registration. In illustration of this, we quote the introductory remarks made by Dr. Draper in the thirty-second registration report of the commonwealth of Massachusetts, just issued: "The utility of accumulating such a mass of figures from year to year is no longer questioned. Registration supplies an array of facts from which reliable conclusions can be drawn, for the benefit of the whole people. The growth and renewal of population; the inroads of disease and physical decay; the wave-like succession of epidemic diseases; the more constant and uniform operation of the wasting maladies that are always with us; the conditions, preventable or inevitable, affecting the mortality from the great class of zymotic disorders, — all these find their most significant illustration in the statistics available through the agency of the registration laws."

Under these circumstances the statistics should be collected with the greatest accuracy, and the task of presenting the conclusions to be drawn from them should be intrusted to those who are specially qualified therefor. The three reports before us [1] give evidence of praiseworthy care and discrimination in their editorial preparation. The necessity for such careful supervision is

[1] Thirty-Second Report relating to the Registry of Births, Marriages, and Deaths in Massachusetts, for the Year ending December 31, 1873. With Editorial Remarks by F. W. Draper, M. D.

Nineteenth Annual Report upon the Births, Marriages, and Deaths in the City of Providence, for the Year 1873. By Edwin M. Snow, M. D.

Twenty-First Registration Report of Rhode Island, for the Year 1873. Edited by E. T. Caswell, M. D.

well illustrated by a consideration of some of the false inferences which it is possible to draw from the statistics of a single year when studied by themselves. For example, in some towns the average age at death is always enormously greater than in others, and yet if some should examine the returns for single years from these same towns, they would be alarmed at the great mortality. If we go back a few years, we find that the average age at death in Suffolk County was 25.65 years; in the same year the average age at death in Plymouth was over 40 years, and in Nantucket it was 54.96, or more than twice as great as in Suffolk. Was there that difference in the healthfulness of the three counties? By no means. The tendency, rather the necessity, is for young men and women at the age of puberty to migrate from every county outside of Suffolk to the metropolitan, or to some densely settled manufacturing district, that they may earn a living. Just in the same way the young men of independence in New Hampshire and Vermont, and in the country towns of this State, find it absolutely necessary to desert their farms for city lives, or for the farms of Southern and Western States, where they can do more than scrape a mere living from the earth. Into cities like Boston these young men come at an early age for mercantile business. Into cities like Providence and Lowell and Fall River another class hasten, for the purpose of building fortunes or earning a living in manufacturing employments. To both the foreigner comes, whose children are got at an early age and frequently with great rapidity; in the manufacturing towns these are more numerous and more closely packed, and in consequence die at an earlier age than elsewhere.

We can only say, in conclusion, that the reports are useful, and that they are a part of the work necessary to be done in increasing the healthfulness of both town and city. It is not every one who can spare time to look them over; but members of city and town governments should do so, and use them as steps towards gaining information which will aid in promoting the welfare of the people.

SALICYLIC ACID.

We have received from Professor Horsford the following abstract of two papers just received from Professor Kolbe, containing the results of experiments made at Leipsic with salicylic acid.

In the lying-in hospital of Leipsic, salicylic acid has been employed to the exclusion of carbolic acid since July last: for disinfection of the hands, in vaginal douching, application to ulcera puerperalia, etc., in solution in water of one part in three hundred to one part in nine hundred, or as a powder mixed with starch in proportion of one part in five. This use of salicylic acid has thus far been attended with such successful results that it is recommended in the strongest terms for use in obstetric practice, by the authorities of the hospital.

Professor Kolbe suggests that physicians, and especially hospital physicians,

should study the action of salicylic acid as a medicine, whether and in what quantity of larger or lesser doses it will influence scarlet fever, diphtheria eruptions, syphilis, dysentery, typhus, cholera, etc.; and whether it may be used against pyæmia and the bites of dogs; also whether it may not be used advantageously among horses, cattle, and sheep to prevent glanders, foot-rot, mortification, and so forth.

Kolbe, to prove the innocuousness of salicylic acid, took for several consecutive days half a gramme (seven and a half grains) daily in water, one part to one thousand, without the slightest observable unpleasant effect. After an interval of eight days he took for five consecutive days one gramme (fifteen and a half grains) daily, and then for two days one and a half grammes, (twenty-three grains) in alcohol each day. The digestion was perfectly normal; no trace of salicylic acid could be found in the urine or fæces. (The test is perchloride of iron, which gives an intense violet color.) At no time was there the slightest discomfort.

The experiment was repeated by Professor Kolbe and eight of his students, all at the same time. Each took on the first day one gramme, and on the second day one and a quarter grammes, of salicylic acid. Not one of them was able to observe the slightest derangement of any organs.

The acid in diluted solution is employed to wash the feet to prevent the offensiveness arising from the butyric, valerianic, and other related acids in sweat. It is also used as a constituent in tooth-powder, and for a liquor to wash the mouth.

Professor Wunderlich, of the University Hospital, Leipsic, recommends a medicinal preparation of salicylic acid for internal use, consisting of

Acidi salicylici	1 gramme
Olei amygdalæ dulcis	20 grammes.
Gummi Arabici	10 "
Syrupi amygdalæ	25 "
Aquæ florum aurantii	45 "

Kolbe proved by experiment in the bath that the salicylic acid is very little if at all absorbed through the skin.

C. Neubauer (a pupil of Professor Kolbe) has experimented with salicylic acid to determine the quantity necessary to arrest fermentation in solutions of sugar and in new wine. He found that one gramme of salicylic acid is adequate to make 0.98 gramme of press yeast (weighed dry) in ten litres (about ten quarts) of new wine incapable of fermentation.

Kolbe found that $\frac{1}{2000}$ of salicylic acid would keep river or pond water in casks perfectly fresh (the experiments continued four weeks in a warm room) where without the acid the water acquired unpleasant taste. This quality will make the salicylic acid serviceable in preserving water on long sea-voyages.

MEDICAL NOTES.

— At a recent meeting of the Trustees of the Massachusetts General Hospital, Dr. Charles B. Porter was appointed visiting surgeon, and Dr. T. B Curtis surgeon to out-patients.

— Dr. Waldau, of Berlin, assistant of the late Von Graefe, received twenty-five thousand thalers from the banker Bleichroeder for a cataract operation.

— A drug clerk in Philadelphia took twenty drops of tincture of aconite for a cold. He died in an hour and a half.

SURGICAL OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

[SERVICE OF DRS. BIGELOW AND CABOT.]

OPERATIONS were performed under ether in the following cases during the week ending February 27 : —

1. Tumor of nates and vagina. 2. Scrofulous testicle. 3. Incised wound of hand. 4. Condylomata of anus and penis. 5. Compound comminuted fracture of leg, with mortification of foot (amputation). 6. Cancer of breast. 7. Felon. 8. Abscess (two cases). 9. Necrosis of humerus. 10. Caries of tarsus. 11. Cancer of lip. 12. Club-foot. 13. Sinus of arm. 14. Ingrowing toe-nail. 15. Vesico-vaginal fistula. 16. Railroad injury of foot (amputation). 17. Frost-bitten fingers and toes.

1. *Fibro-Cellular Tumor of Nates and Vagina.* — The age of this patient was thirty-one years. Two years ago she noticed a swelling in the left groin, which gradually moved downward, involving the left labium and buttock. She has now a tumor over the tuberosity of the left ischium of the size of a cocoa-nut. There has been no pain. Upon examination, the tumor is oval, and consists of several lobes slipping about beneath the integument, suggesting hypertrophied omental fat moving freely in a hernial sac. The tumor extends upward by the side of the vagina as high as the os uteri, and almost fluctuates. An aspirator has failed to discover any fluid. The integuments are everywhere healthy. An exploratory incision was made by Dr. Bigelow upon the tumor of the nates. As the fat was incised, the inclosed lobes slipped loosely from side to side until the incision, instead of opening a sac, penetrated their fibro-cellular substance. These lobes were inseparable from the surrounding tissue, but were merged in it, being loose and succulent upon their surface. They were slowly dissected upward beneath the vagina, and the operation was terminated chiefly on account of the abundant hæmorrhage. In fact, wherever the fibres of the tissue were stripped or torn, their interstices contained long parallel and wavy vessels. In this, the tumor differed from another alluded to below. As the most effectual means of strangulating the neck of the growth, a wire écraseur was drawn tightly around it and left in place. The mass sloughed off in a few days, the fœtor being only partially checked by the liberal use of salicylic acid. On the third day the patient complained of pain in the left knee, and septicæmia was suspected. Of this she died on the seventh day after the operation. On examination the knee was found to contain pus, while the visceral changes were marked. The tumor proved to have its origin in a

slightly thickened cellular tissue between the vagina and rectum, and behind the latter; very little of it, however, remained. Its microscopical structure was mainly an imperfectly formed fibroid tissue. In fact, this growth has been very completely described by Paget as occurring about the vagina and scrotum. Volume LXX., page 169, of this JOURNAL contains the description of a tumor of about this size, removed from the scrotum of a man who recovered from the operation. This tumor had its origin near the prostate gland. In connection with the septicæmia in the present case, it may be stated that the patient was accustomed to the use of ardent spirits, and failed with unusual rapidity.

5. *Compound Comminuted Fracture of Leg, with Mortification of the Foot.* — A bank of earth fell upon the patient, a man twenty-two years old, six days before he entered the hospital, crushing the foot and fracturing the tibia in its lower third. On entrance, gangrene of the foot had commenced, but no line of demarcation existed. The whole limb was swollen as high as the groin, and covered with an erysipelatous blush. Six days after, a line of demarcation had formed at the ankle, and amputation was performed at this point through the infiltrated tissues by Dr. Cabot.

9. *Necrosis of Humerus* in a man twenty-five years of age, the disease being of seventeen months' duration, without known cause. It occupied the lower two thirds of the shaft of the humerus, which was greatly enlarged and perforated by four sinuses; between two of these sinuses was the track of the musculo-spiral nerve. It was therefore necessary to attack the bone through the healthy triceps muscle on its outer aspect. The periosteum was stripped at the sides of the wound, and the surface of the new bone exposed. A trephine on a bit stock was applied at two points only a couple of inches apart, to avoid the nerve above and the elbow below. Disks were removed of the thickness of more than half an inch and the holes united by the chisel and mallet. Through this deep and narrow opening a sequestrum was at length removed, measuring two and a half inches in length and comprising the whole circumference of the old shaft. The readiest way of uniting trephine holes when they are farther apart than in this instance is by the middle-sized scie à mollette, the small saw not cutting fast enough, while it is impossible to hold the largest one. A clean orifice into the bone cavity is thus made with parallel sides and round ends. A practical question often is whether an attempt shall be made upon the sequestrum before it is loose. Dr. Bigelow believes it better as a rule to wait until the bone is detached. In a young and healthy subject, necrosis of the humerus and tibia is rapidly eliminated and the result is then most satisfactory; on the other hand, in an older or feebler subject, and generally in the femur, the process is very slow. When the sequestrum is loose, the operation is a relief to the part; on the other hand, an operation upon bone not yet detached frequently produces a high degree of inflammation, which is in the femur sometimes fatal; and we can only guess as to much of what is dead and what is alive. In default of other signs, the mobility of a large sequestrum may be approximately inferred by bleeding at one sinus when a probe has been introduced at another distant one.

16. *Railroad Injury of Foot.* — A young man whose foot was crushed by railroad injury (see last JOURNAL, Massachusetts General Hospital Report,

case 4) was operated upon. The two small toes were gone, as also the integuments of the foot above and below, on a line with these toes and as high as the instep. It being impossible that this surface should heal over, so as to admit of the patient's walking, it became necessary to sacrifice the anterior half of the foot to secure integuments to cover the rest. Dr. Bigelow believed it better practice on the whole to divide the tarsus with a saw rather than by the disarticulations of Lisfranc or of Chopart.

H. H. A. Beach, M. D., Surgeon to Out-Patients.

Urethral Strawberry Tumor. — Messrs. Editors. In connection with the account of a case of this affection in your last number (Massachusetts General Hospital Report), it is proper to say that Dr. Blodgett's microscopical report was more complete than is there stated. The growth really took the form of papilloma; it consisted principally of granulation tissue with some normal or highly hypertrophied connective tissue, but was formed into numerous papillæ furnished with large, looping blood-vessels, of which several sometimes ramified in the same papilla. The external surface was covered with flat epithelium of a considerable thickness in places which were protected from injury, but which was easily detached from its place and separated into its single cells by the action of the fluid in which the section was suspended, in parts where the epithelium was near the border of the field. It seemed, therefore, to be a papilloma of the simple variety, its erectile power depending upon the numerous large capillaries ramifying in every part; the growth containing of course, also, other larger vessels. The coincidence of a sensitive tumor before mentioned of the male urethra with warts upon the gland, corroborates the results of Dr. Blodgett's examination. H. H. A. B.

SURGICAL OPERATIONS AT THE BOSTON CITY HOSPITAL.

[SERVICE OF DRS. CHEEVER AND THORNDIKE.]

The following operations were performed on Tuesday and Friday, February 23, and 26, 1875: —

1. Urinary fistulæ. 2. Hypertrophy of clitoris. 3. Removal of testicle. 4. Fistula in ano. 5. Plastic operation. 6. Abscess in axilla. 7. Radical cure of hydrocele. 8. Radical cure of hydrocele of the cord. 9. Necrosis of femur. 10. Mammary abscess. 11. Necrosis of lower jaw. 12. Amputation of toe. 13. Necrosis of tibia.

1. *Urinary Fistulæ.* — A man, thirty-nine years of age, fell upon the ice a year ago. He was stunned for a few moments, and does not know whether he struck upon his side or back. In a very short time he was able to get up and walk, but when he urinated there was some pain, and he passed a little blood. These symptoms passed off in a little while, and he was in his usual health till about six months ago, when he began to have pain in the region of the bladder. An abscess formed and broke an inch above Poupart's ligament, and two inches to the left of the median line. This was soon followed by another abscess, on the upper and inner side of the left thigh. When he entered

the hospital both of these openings were discharging urine, but only when he attempted to empty his bladder. There was no infiltration of urine, and no stricture of the urethra; nor had there ever been any. Denuded bone could be felt in both sinuses; probably some part of the rami of the pubes and ischium.

The patient having been etherized, Dr. Cheever passed a full-sized steel sound into the bladder without difficulty. In so doing, the sound struck upon a hard, rough substance, feeling like calculus or bone, between the bulb and the prostate. The finger in the rectum found the membranous urethra normal, and the prostate slightly enlarged. A probe was passed nearly perpendicularly down through the abdominal sinus for four inches, and struck roughened bone. A second probe was passed up through the thigh sinus for four inches, and also touched dead bone. It was evident that these two sinuses met near the rami of the pubes and ischium.

The sinuses were now slit up. The upper one was found to lead down behind the pubes, and connect with the lower through an opening in the rami of the pubes and ischium on the left side. A loose sequestrum, an inch long, was removed from the lower wound. A thin scale of bone, a third of an inch long, was found in the bulbous portion of the urethra, and was removed in the channel of a grooved staff without cutting. No opening could be found in the urethra communicating with the fistulæ.

The violent fall, the bleeding from the urethra, and the size of the sequestrum render it probable that the ramus of the pubes was partially fractured, and the membranous urethra pierced with a spiculum of bone. Subsequently, urinary abscess, followed by necrosis, became slowly developed.

2. *Hypertrophy of the Clitoris.* — The patient was a young white woman. The growth was of nine months' duration. It was a soft, lobulated mass with a long neck. The principal tumor was as large as a small orange, and hung down about four inches. The labia majora were œdematous, and there were several warty growths and condylomata about the clitoris and nymphæ.

Dr. Thorndike removed the enlarged clitoris with the écraseur. The hæmorrhage was so slight that no ligatures were required. The vegetations were cut off with scissors. The raw surfaces were touched with nitric acid, and cold water dressing was ordered.

3. *Removal of the Testicle.* — The patient is nineteen years of age, and apparently healthy. He has never received any injury upon the scrotum, and there is no history of venereal disease. The right testis was removed four years ago for scrofulous disease. The left began to get sore and painful four or five months ago. The gland was swollen, tender, and discharging pus from two or three deep sinuses. The patient was unable to work, and was determined to have it removed. Dr. Thorndike performed castration in the usual manner, saving all of the scrotum. The hæmorrhage was slight. The wound was closed with sutures.

7 and 8. *Hydrocele.* — Dr. Thorndike drew off the contents of the hydrocele, and injected the sac with pure tincture of iodine, but did not allow it all to remain.

The hydrocele of the cord was laid open with the knife, and lightly packed with charpie.

GEO. W. GAY, M. D.

LETTER FROM NEW YORK.

[FROM OUR OWN CORRESPONDENT.]

MESSRS. EDITORS, — Quite an elaborate paper was read last November before the Academy of Medicine, by Dr. E. C. Seguin, on Acute, Sub-Acute, and Chronic Spinal Paralysis in Adults. This essay has just been printed "for private circulation only," together with a clinical lecture on Acute Spinal Paralysis in Children, making a book of fifty-seven pages. According to the author, the symptoms of acute spinal paralysis in adults consist in a paresis or akinesis affecting the muscles of rational life, accompanied by atrophy and early loss of electro-muscular contractility in the paralyzed muscles, with absence of extensive or permanent anæsthesia, spinal epilepsy, bed-sores, urinary incontinence, or sphincter-ani palsy. The acute form resembles infantile spinal paralysis; the akinesis is developed in from one to three days, it has the same character, and affects the same muscles. In the sub-acute form the affection is developed more gradually, extending over a period of from ten to twenty days. The chronic form resembles, in many ways, progressive muscular atrophy, but in the latter disease the wasting affects portions of muscles, and never muscular groups, as in spinal palsy. Again, progressive muscular atrophy is apt to strike homologous parts, and the electro-muscular contractility is preserved in the muscles which are the seat of wasting, as long as any muscular fibre remains; whereas, in spinal paralysis the reaction to the faradic current is lost very early. The pathological lesion consists of "a granular degeneration of the ganglion-cells of the anterior horn."

The treatment recommended in the early stage of the acute form consists in counter-irritation to the spinal region, with dry cups, the actual cautery, and leeches; ergot and belladonna are to be given internally, the latter so as to produce slight throat and eye symptoms; at the same time good nourishment is necessary. Later, galvanism is used so as to produce contraction in the paralyzed muscles.

Small-pox is quite prevalent in the city this winter. We have an epidemic here every three or four years. Last summer more cases were reported than is usual for that season; the small-pox hospital on Blackwell's Island, which during the warm weather usually has from ten to twenty patients, averaged about sixty; there are now about two hundred and fifty cases there. The disease first began in July, on the east side of the city, at about One-Hundred-and-Nineteenth Street; from that point it gradually worked down until, in October, cases were received from all the thickly settled portions of the city. I see by the daily papers that the Board of Health, to whose care the small-pox hospital was transferred by the Commissioners of Charity and Correction last month, has placed the nursing in charge of Sisters of Charity.

We have had an unusual amount of diphtheria during the past year, with a very high rate of mortality. During the last week in January 113 cases were reported, and for the first week in February, 126 cases. In 1872 there were 446 deaths from this disease, while in 1873 they reached 1151. Last month 210 deaths were assigned to this cause. The disease seems to be confined to certain localities in the city.

The medical profession here has long felt the want of a suitable building where the different societies could hold their meetings. Heretofore, one of the lecture-rooms of the College of Physicians and Surgeons has been used for this purpose, but it is inconvenient and unattractive. The Academy of Medicine has had for some time the subject of purchasing a building under consideration, and within the past month has obtained the house No. 12 West Thirty-First Street; they will not, however, get possession of it until the first of May. Certain necessary alterations will have to be made, which will not be completed until late in the summer. Dr. Purple, the present president, has given to the Academy his collection of American medical journals, the most complete, I believe, in the country; this, together with about twelve hundred volumes now owned by the society, will form the nucleus of a library.

In speaking of libraries, I must mention that of the Society of the New York Hospital, recently opened in its new quarters, No. 8 West Sixteenth Street. Last winter the Board of Governors purchased the property known as the Thorn mansion, — situated between Fifth and Sixth Avenues, and extending from Fifteenth to Sixteenth Street, having a frontage of one hundred and twenty-five feet on Sixteenth and seventy-five on Fifteenth Street, — for $200,000; since then they have obtained four more lots on Fifteenth Street, giving a total frontage of one hundred and seventy-five feet on that street. On this property, and on the Fifteenth Street side of it, they intend putting up a hospital building during the present year, to accommodate about ninety patients.

The house situated on Sixteenth Street is about sixty by eighty feet; it has been put in thorough order. The first floor is to be used for the executive purposes of the hospital. The second floor, consisting of seven large and four or five smaller rooms, has been fitted up for the library and pathological cabinet of the old New York Hospital. The former occupies four connecting rooms on the south side of the building. The largest is in the centre, about twenty by twenty-five feet in size, and is devoted to standard works, encyclopædias, etc., and the office of the librarian; the room on the left as you enter (eighteen by twenty feet) is filled with English, French, German, and American journals, and English hospital and society reports; on the right of the main room is another (fifteen by twenty feet), which contains rare books of reference, of which the society has a valuable collection; connecting with this is another room. All of these rooms are handsomely carpeted, fitted up with black walnut cases with glass sliding doors, and contain tables, etc. They are well lighted, and the whole building is heated by steam; in fact, everything has been done to make the place comfortable and attractive. Formerly only the attending staff and graduates of the hospital were allowed to take books out, but since October last it has been made a free library of reference, and is open daily from 10 to 12 A. M., from 1.30 to 5 P. M., and from 7 to 10 in the evening. It contains about ten thousand volumes, including the valuable collection of rare books, the legacy of John Watson, M. D., a former surgeon to the hospital. The library is especially rich in English medical journals and hospital reports; has a good collection of French and German journals, but is poor in American periodicals. It has but just obtained a full set of the Boston Medical and Surgical Journal. Thirty-eight English journals

and serials, twelve German, seventeen French, and nine American periodicals are now taken; constant additions are being made to the library of monographs, standard works, etc., as soon as they are issued. The librarian, Dr. John L. Vandervoort, has held the position for nearly forty years, and to his labor is due the fact that the library is in such a flourishing condition, being one of the largest medical libraries in the country.

The first number of A Series of American Clinical Lectures appeared the first of the month; it is on Disease of the Hip-Joint, and the author is Dr. Lewis A. Sayre. The next number will be issued the first of March, and will contain a lecture by Dr. A. Jacobi on Acute Rheumatism in Children. These pamphlets are published by G. P. Putnam's Sons under the editorial control of Dr. E. C. Seguin.

WEEKLY BULLETIN OF PREVALENT DISEASES.

The following is a bulletin of the diseases prevalent in Massachusetts during the week ending March 6, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State:—

In Berkshire: influenza and bronchitis.

In the Connecticut Valley: influenza, bronchitis, pneumonia, rheumatism, and whooping-cough. Small-pox in Holyoke — a few cases only.

In Worcester County: bronchitis, influenza, pneumonia, measles, rheumatism, and scarlatina. Measles and scarlatina have subsided considerably.

In the Northeastern section: influenza, bronchitis, pneumonia, scarlatina, and rheumatism. A fatal case of cerebro-spinal meningitis in Natick, and one in Sherborn.

In the Metropolitan district: bronchitis, measles, pneumonia, rheumatism, influenza, and scarlatina. Except bronchitis and scarlatina, all the above diseases are less prevalent than they were last week.

In the Southeastern counties and the islands: bronchitis, influenza, pneumonia, measles, and whooping-cough. Measles has increased in prevalence.

Bronchitis and pneumonia are the most prevalent diseases in the State; influenza, rheumatism, and scarlatina have the next place in the scale. The epidemic of influenza is steadily subsiding; scarlatina is increasing in prevalence; so also is whooping-cough; all the other diseases are less rife. The type of all the diseases except pneumonia is reported to be mild.

Measles continues to have its field of maximum prevalence in Boston and the vicinity; scarlatina is most prevalent in Middlesex and Essex; whooping-cough on the Cape.

F. W. Draper, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING FEBRUARY 27, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-rate per 1000 during Week.
New York	1,040,000	605	30
Philadelphia	775,000	386	26
Brooklyn	450,000	198	23
Boston	350,000	187	28
Providence	100,000	52	27
Worcester	50,000	27	28
Lowell	50,000	19	20
Cambridge	44,000	17	20
Fall River	34,200	23	35
Lawrence	33,000	15	24
Springfield	33,000	7	11
Lynn	28,000	16	30
Salem	26,000	18	36

BOOKS AND PAMPHLETS RECEIVED.

Lectures on Pathological Anatomy. By Samuel Wilks, M. D., and Walter Moxon, M. D. Second Edition. Philadelphia: Lindsay and Blakiston. 1875. (For sale by James Campbell.)

On Winter Cough. By Horace Dobell, M. D. Third Edition. Philadelphia: Lindsay and Blakiston. 1875. (For sale by James Campbell.)

The Coming Medical Man. A Discourse delivered before the New York Academy of Medicine. By D. B. St. John Roosa, M. D. New York: D. Appleton & Co. 1875.

Spinal Paralysis of the Adult, Acute, Sub-Acute, and Chronic. By E. C. Seguin, M. D. New York: D. Appleton & Co. 1874.

Forty-Second Annual Report of the Trustees of the State Lunatic Hospital at Worcester, October, 1874.

Proceedings of the First Annual Meeting of the Eastern Medical Association at Newbern, N. C. 1875.

Medizinische Jahrbücher herausgegeben von der k. k. Gesellschaft der Aertzte. Redigirt von S. Stricker. Jahrgang, 1874. Heft ii., iii., iv. (From James Campbell.)

Rhode Island Twenty-First Registration Report, 1873.

The Microscope and its Revelations. By William B. Carpenter, M. D., LL. D. Fifth Edition. Philadelphia: Lindsay and Blakiston. 1875. (For sale by James Campbell.)

On Functional Derangements of the Liver; being the Croonian Lectures for 1874. By Charles Murchison, M. D., LL. D., F. R. S. New York: William Wood & Co. 1875.

A Treatise on Cutaneous Medicine and Diseases of the Skin. By H. S. Purdon, M. D. London: Baillière, Tindall, and Cox. 1874.

The Protoplasmic Theory of Life. By John Drysdale, M. D. Edin., F. R. M. S. London: Baillière, Tindall, and Cox. 1875.

Cholera: How to Prevent and Resist It. By Dr. Max von Pettenkofer. From the German, by Thomas Whiteside Hime, A. B., M. B., etc. London: Baillière, Tindall, and Cox. 1875.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen. Vol. II., Acute Infectious Diseases. Albert H. Buck, M. D., Editor of American Edition. New York: William Wood & Co. 1875. (From H. D. Brown & Co., Boston.)

The Histology and Histo-Chemistry of Man. By Heinrich Frey, Professor of Medicine in Zurich. Translated from the Fourth German Edition, by Arthur J. Backer, Surgeon to the Dublin Hospital. New York: D. Appleton & Co. 1875.